



IFW16

RAW SEQUENCE LISTING

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:58

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

4 <110> APPLICANT: SAKAKIBARA, Keiko
 5 FUKUI, Yuko
 6 TANAKA, Yoshikazu
 7 KUSUMI, Takaaki
 8 MIZUTANI, Masako
 9 NAKAYAMA, Toru
 11 <120> TITLE OF INVENTION: GENE ENCODING PROTEIN HAVING AURONE SYNTHESIZING ACTIVITY
 13 <130> FILE REFERENCE: 001560-377
 15 <140> CURRENT APPLICATION NUMBER: US 09/446,089E
 16 <141> CURRENT FILING DATE: 1999-12-17
 18 <150> PRIOR APPLICATION NUMBER: PCT/JP99/02045
 19 <151> PRIOR FILING DATE: 1999-04-16
 21 <150> PRIOR APPLICATION NUMBER: JP 10/107296
 22 <151> PRIOR FILING DATE: 1998-04-17
 24 <160> NUMBER OF SEQ ID NOS: 15
 26 <170> SOFTWARE: PatentIn version 3.0
 28 <210> SEQ ID NO: 1
 29 <211> LENGTH: 1951
 30 <212> TYPE: DNA
 31 <213> ORGANISM: Antirrhinum majus
 33 <220> FEATURE:
 34 <221> NAME/KEY: CDS
 35 <222> LOCATION: (96)..(1781)
 37 <400> SEQUENCE: 1
 38 aaattacatt gcttcctttg tccacacctc caccaccaat atatacaact tcctcagcta 60
 40 gttgtttatt atcaatcaaa taaaattatt tccca atg ttc aaa aat cct aat 113
 41 Met Phe Lys Asn Pro Asn
 42 1 5
 44 atc cgc tat cac aaa cta tct tcc aaa tcc aat gac aac gat caa gaa 161
 45 Ile Arg Tyr His Lys Leu Ser Ser Lys Ser Asn Asp Asn Asp Gln Glu
 46 10 15 20
 48 tcc tcc cat cgt tgt aag cac att cta tta ttt ata ata acc tta ttc 209
 49 Ser Ser His Arg Cys Lys His Ile Leu Leu Phe Ile Ile Thr Leu Phe
 50 25 30 35
 52 cta ctt ata gtt ggc ctg tac atc gcc aac tct ctc gcc tat gcc cgg 257
 53 Leu Leu Ile Val Gly Leu Tyr Ile Ala Asn Ser Leu Ala Tyr Ala Arg
 54 40 45 50
 56 ttt gcc tcg acc tca acc ggc cct atc gcc gcc cct gat gtc acc aaa 305
 57 Phe Ala Ser Thr Ser Thr Gly Pro Ile Ala Ala Pro Asp Val Thr Lys
 58 55 60 65 70
 60 tgt ggt cag cca gac ttg cca cct ggc aca gcc cca ata aac tgt tgt 353
 61 Cys Gly Gln Pro Asp Leu Pro Pro Gly Thr Ala Pro Ile Asn Cys Cys
 62 75 80 85



p.6

RAW SEQUENCE LISTING

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:58

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

64	ccc cca atc ccc gct aaa atc atc gat ttc gag cta cca cct ccc tcc	401
65	Pro Pro Ile Pro Ala Lys Ile Ile Asp Phe Glu Leu Pro Pro Pro Ser	
66	90 95 100	
68	act acc atg agg gtt cgc cgt gcg gct cat tta gtt gat gat gca tac	449
69	Thr Thr Met Arg Val Arg Arg Ala Ala His Leu Val Asp Asp Ala Tyr	
70	105 110 115	
72	att gcc aaa ttc aag aaa gcc gtt gag ctt atg cga gct cta cct gag	497
73	Ile Ala Lys Phe Lys Lys Ala Val Glu Leu Met Arg Ala Leu Pro Glu	
74	120 125 130	
76	gat gac cct cgt agc ttc aag caa caa gct aac gtc cat tgc gct tac	545
77	Asp Asp Pro Arg Ser Phe Lys Gln Gln Ala Asn Val His Cys Ala Tyr	
78	135 140 145 150	
80	tgc gcg ggg gcg tat aat caa gcc ggt ttc aca aac cta aag ctc caa	593
81	Cys Ala Gly Ala Tyr Asn Gln Ala Gly Phe Thr Asn Leu Lys Leu Gln	
82	155 160 165	
84	atc cac cga tct tgg ctt ttt ttc ccg ttc cat aga tat tat atc tac	641
85	Ile His Arg Ser Trp Leu Phe Phe Pro Phe His Arg Tyr Tyr Ile Tyr	
86	170 175 180	
88	ttt ttt gaa aga ata ttg gga aaa cta atc aat gat aca act ttt gct	689
89	Phe Phe Glu Arg Ile Leu Gly Lys Leu Ile Asn Asp Thr Thr Phe Ala	
90	185 190 195	
92	ctc caa ttt tgg aac tat gat tca cct ggt gga atg aca atc cca tca	737
93	Leu Gln Phe Trp Asn Tyr Asp Ser Pro Gly Gly Met Thr Ile Pro Ser	
94	200 205 210	
96	atg ttt att gat act aat tct tcg ctg tac gat agt tta cgg gac agt	785
97	Met Phe Ile Asp Thr Asn Ser Ser Leu Tyr Asp Ser Leu Arg Asp Ser	
98	215 220 225 230	
100	aat cat cag cca cca acc atc gta gac ttg aac tac gcc ttt tct gat	833
101	Asn His Gln Pro Pro Thr Ile Val Asp Leu Asn Tyr Ala Phe Ser Asp	
102	235 240 245	
104	tcc gac aat acc act act cct gaa gag caa atg att ata aac ctt aaa	881
105	Ser Asp Asn Thr Thr Thr Pro Glu Glu Met Ile Ile Asn Leu Lys	
106	250 255 260	
108	att gtg tac aga caa atg gtg tgc agc gct aag act cca cag ctt ttc	929
109	Ile Val Tyr Arg Gln Met Val Ser Ser Ala Lys Thr Pro Gln Leu Phe	
110	265 270 275	
112	ttc ggc cgc cca tac cga cgt ggg gac caa gag ttt ccc ggg gtg ggg	977
113	Phe Gly Arg Pro Tyr Arg Arg Gly Asp Gln Glu Phe Pro Gly Val Gly	
114	280 285 290	
116	tcg att gag tta gtc cct cat ggc atg ata cat tta tgg acc ggt tct	1025
117	Ser Ile Glu Leu Val Pro His Gly Met Ile His Leu Trp Thr Gly Ser	
118	295 300 305 310	
120	gag aac acg ccc tat ggc gag aac atg ggg gct ttc tac tca acg gct	1073
121	Glu Asn Thr Pro Tyr Gly Glu Asn Met Gly Ala Phe Tyr Ser Thr Ala	
122	315 320 325	
124	aga gac ccg ata ttt ttt gct cat cat tcg aac gtc gat aga atg tgg	1121
125	Arg Asp Pro Ile Phe Phe Ala His His Ser Asn Val Asp Arg Met Trp	
126	330 335 340	
128	tcc ata tgg aag acc cta gga ggg ccg cgg agg acg gac tta aca gat	1169

RAW SEQUENCE LISTING

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:58

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

```

129 Ser Ile Trp Lys Thr Leu Gly Gly Pro Arg Arg Thr Asp Leu Thr Asp
130      345      350      355
132 cca gat ttt ctt gat gcg tct ttc gtt ttt tat gac gaa aac gca gag      1217
133 Pro Asp Phe Leu Asp Ala Ser Phe Val Phe Tyr Asp Glu Asn Ala Glu
134      360      365      370
136 atg gtt cgg gtc aag gtt cgg gat tgc tta gat gaa aag aaa cta ggg      1265
137 Met Val Arg Val Lys Val Arg Asp Cys Leu Asp Glu Lys Lys Leu Gly
138 375      380      385      390
140 tac gtt tat caa gat gtg gag att ccg tgg ctc aac act cgt cca aca      1313
141 Tyr Val Tyr Gln Asp Val Glu Ile Pro Trp Leu Asn Thr Arg Pro Thr
142      395      400      405
144 cca aaa gtt tct ccg tct cta ctt aag aaa ttt cat aga aca aac act      1361
145 Pro Lys Val Ser Pro Ser Leu Leu Lys Lys Phe His Arg Thr Asn Thr
146      410      415      420
148 gcc aat ccg aga caa gtt ttt cct gcg ata ctt gac aga gtc tta aaa      1409
149 Ala Asn Pro Arg Gln Val Phe Pro Ala Ile Leu Asp Arg Val Leu Lys
150      425      430      435
152 gtt atc gtg acg agg ccg aag aaa act aga agt agg aaa gaa aag gac      1457
153 Val Ile Val Thr Arg Pro Lys Lys Thr Arg Ser Arg Lys Glu Lys Asp
154      440      445      450
156 gag tta gaa gag att tta gtg att gaa ggg att gaa ctg gaa aga gac      1505
157 Glu Leu Glu Glu Ile Leu Val Ile Glu Gly Ile Glu Leu Glu Arg Asp
158 455      460      465      470
160 cac ggg cac gta aaa ttc gac gtt tat att aat gct gac gaa gat gac      1553
161 His Gly His Val Lys Phe Asp Val Tyr Ile Asn Ala Asp Glu Asp Asp
162      475      480      485
164 ctt gcg gtg att tcg ccg gag aat gct gag ttc gcc ggg agt ttc gtg      1601
165 Leu Ala Val Ile Ser Pro Glu Asn Ala Glu Phe Ala Gly Ser Phe Val
166      490      495      500
168 agt ctg tgg cac aaa cct ata aag ggg aag agg aca aag acg cag tta      1649
169 Ser Leu Trp His Lys Pro Ile Lys Gly Lys Arg Thr Lys Thr Gln Leu
170      505      510      515
172 tta aca ttg tcg att tgt gat att ttg gag gat ttg gat gct gac gaa      1697
173 Leu Thr Leu Ser Ile Cys Asp Ile Leu Glu Asp Leu Asp Ala Asp Glu
174      520      525      530
176 gat gat tat gtg ttg gtc act ttg gtt ccg aga aac gcc gga gat gcg      1745
177 Asp Asp Tyr Val Leu Val Thr Leu Val Pro Arg Asn Ala Gly Asp Ala
178 535      540      545      550
180 atc aag att cat aat gtc aag att gag ctt gat ggc taataaatc      1791
181 Ile Lys Ile His Asn Val Lys Ile Glu Leu Asp Gly
182      555      560
184 tattgatttc ttctcaacct acagttgatc atttaccgat tgattattcc aataaaagta      1851
186 tctcatgtac caatatcgat cgtattaatc gtaatacttt cagattttta tttatttaaa      1911
188 agcagttgta taaatggtga aataaggatt actttttgag      1951
192 <210> SEQ ID NO: 2
193 <211> LENGTH: 562
194 <212> TYPE: PRT
195 <213> ORGANISM: Antirrhinum majus
197 <400> SEQUENCE: 2

```

RAW SEQUENCE LISTING

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:58

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

```

199 Met Phe Lys Asn Pro Asn Ile Arg Tyr His Lys Leu Ser Ser Lys Ser
200 1 5 10 15
203 Asn Asp Asn Asp Gln Glu Ser Ser His Arg Cys Lys His Ile Leu Leu
204 20 25 30
207 Phe Ile Ile Thr Leu Phe Leu Leu Ile Val Gly Leu Tyr Ile Ala Asn
208 35 40 45
211 Ser Leu Ala Tyr Ala Arg Phe Ala Ser Thr Ser Thr Gly Pro Ile Ala
212 50 55 60
215 Ala Pro Asp Val Thr Lys Cys Gly Gln Pro Asp Leu Pro Pro Gly Thr
216 65 70 75 80
219 Ala Pro Ile Asn Cys Cys Pro Pro Ile Pro Ala Lys Ile Ile Asp Phe
220 85 90 95
223 Glu Leu Pro Pro Ser Thr Thr Met Arg Val Arg Arg Ala Ala His
224 100 105 110
227 Leu Val Asp Asp Ala Tyr Ile Ala Lys Phe Lys Lys Ala Val Glu Leu
228 115 120 125
231 Met Arg Ala Leu Pro Glu Asp Asp Pro Arg Ser Phe Lys Gln Gln Ala
232 130 135 140
235 Asn Val His Cys Ala Tyr Cys Ala Gly Ala Tyr Asn Gln Ala Gly Phe
236 145 150 155 160
239 Thr Asn Leu Lys Leu Gln Ile His Arg Ser Trp Leu Phe Phe Pro Phe
240 165 170 175
243 His Arg Tyr Tyr Ile Tyr Phe Phe Glu Arg Ile Leu Gly Lys Leu Ile
244 180 185 190
247 Asn Asp Thr Thr Phe Ala Leu Gln Phe Trp Asn Tyr Asp Ser Pro Gly
248 195 200 205
251 Gly Met Thr Ile Pro Ser Met Phe Ile Asp Thr Asn Ser Ser Leu Tyr
252 210 215 220
255 Asp Ser Leu Arg Asp Ser Asn His Gln Pro Pro Thr Ile Val Asp Leu
256 225 230 235 240
259 Asn Tyr Ala Phe Ser Asp Ser Asp Asn Thr Thr Thr Pro Glu Glu Gln
260 245 250 255
263 Met Ile Ile Asn Leu Lys Ile Val Tyr Arg Gln Met Val Ser Ser Ala
264 260 265 270
267 Lys Thr Pro Gln Leu Phe Phe Gly Arg Pro Tyr Arg Arg Gly Asp Gln
268 275 280 285
271 Glu Phe Pro Gly Val Gly Ser Ile Glu Leu Val Pro His Gly Met Ile
272 290 295 300
275 His Leu Trp Thr Gly Ser Glu Asn Thr Pro Tyr Gly Glu Asn Met Gly
276 305 310 315 320
279 Ala Phe Tyr Ser Thr Ala Arg Asp Pro Ile Phe Phe Ala His His Ser
280 325 330 335
283 Asn Val Asp Arg Met Trp Ser Ile Trp Lys Thr Leu Gly Gly Pro Arg
284 340 345 350
287 Arg Thr Asp Leu Thr Asp Pro Asp Phe Leu Asp Ala Ser Phe Val Phe
288 355 360 365
291 Tyr Asp Glu Asn Ala Glu Met Val Arg Val Lys Val Arg Asp Cys Leu
292 370 375 380
295 Asp Glu Lys Lys Leu Gly Tyr Val Tyr Gln Asp Val Glu Ile Pro Trp

```

RAW SEQUENCE LISTING

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:58

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

```

296 385          390          395          400
299 Leu Asn Thr Arg Pro Thr Pro Lys Val Ser Pro Ser Leu Leu Lys Lys
300          405          410          415
303 Phe His Arg Thr Asn Thr Ala Asn Pro Arg Gln Val Phe Pro Ala Ile
304          420          425          430
307 Leu Asp Arg Val Leu Lys Val Ile Val Thr Arg Pro Lys Lys Thr Arg
308          435          440          445
311 Ser Arg Lys Glu Lys Asp Glu Leu Glu Glu Ile Leu Val Ile Glu Gly
312          450          455          460
315 Ile Glu Leu Glu Arg Asp His Gly His Val Lys Phe Asp Val Tyr Ile
316 465          470          475          480
319 Asn Ala Asp Glu Asp Asp Leu Ala Val Ile Ser Pro Glu Asn Ala Glu
320          485          490          495
323 Phe Ala Gly Ser Phe Val Ser Leu Trp His Lys Pro Ile Lys Gly Lys
324          500          505          510
327 Arg Thr Lys Thr Gln Leu Leu Thr Leu Ser Ile Cys Asp Ile Leu Glu
328          515          520          525
331 Asp Leu Asp Ala Asp Glu Asp Asp Tyr Val Leu Val Thr Leu Val Pro
332          530          535          540
335 Arg Asn Ala Gly Asp Ala Ile Lys Ile His Asn Val Lys Ile Glu Leu
336 545          550          555          560
339 Asp Gly
342 <210> SEQ ID NO: 3
343 <211> LENGTH: 13
344 <212> TYPE: PRT
345 <213> ORGANISM: Antirrhinum majus
347 <400> SEQUENCE: 3
349 Lys Lys Leu Gly Tyr Val Tyr Gln Asp Val Glu Ile Pro
350 1          5          10
353 <210> SEQ ID NO: 4
354 <211> LENGTH: 12
355 <212> TYPE: PRT
356 <213> ORGANISM: Antirrhinum majus
358 <400> SEQUENCE: 4
360 Lys Ile Val Tyr Arg Gln Met Val Ser Ser Ala Lys
361 1          5          10
364 <210> SEQ ID NO: 5
365 <211> LENGTH: 18
366 <212> TYPE: PRT
367 <213> ORGANISM: Antirrhinum majus
369 <400> SEQUENCE: 5
371 Lys Thr Pro Gln Leu Phe Phe Gly Arg Pro Tyr Arg Arg Gly Asp Gln
372 1          5          10          15
374 Glu Phe
377 <210> SEQ ID NO: 6
378 <211> LENGTH: 30
379 <212> TYPE: PRT
380 <213> ORGANISM: Antirrhinum majus
382 <220> FEATURE:

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/446,089E

DATE: 07/26/2004
TIME: 11:26:59

Input Set : A:\001560-377.ST25.txt
Output Set: N:\CRF4\07262004\I446089E.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:6; Xaa Pos. 9,29
Seq#:8; Xaa Pos. 2
Seq#:9; Xaa Pos. 6
Seq#:11; N Pos. 6,15,18
Seq#:12; N Pos. 12
Seq#:13; N Pos. 4,7

VERIFICATION SUMMARY

DATE: 07/26/2004

PATENT APPLICATION: US/09/446,089E

TIME: 11:26:59

Input Set : A:\001560-377.ST25.txt

Output Set: N:\CRF4\07262004\I446089E.raw

L:394 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:6 after pos.:0
M:341 Repeated in SeqNo=6
L:448 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8 after pos.:0
L:467 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9 after pos.:0
L:501 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11 after pos.:0
L:520 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12 after pos.:0
L:538 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:0